Complete Summary

GUIDELINE TITLE

Antepartum fetal surveillance.

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Antepartum fetal surveillance. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 1999 Oct. 12 p. (ACOG practice bulletin; no. 9). [62 references]

GUIDELINE STATUS

This is the current release of the guideline.

According to the guideline developer, this guideline is still considered to be current as of December 2004, based on a review of literature published that is performed every 18-24 months following the original guideline publication.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Fetal well-being in pregnancies complicated either by preexisting maternal conditions or those in which complications have developed:

Maternal Conditions

- Antiphospholipid syndrome
- Hyperthyroidism (poorly controlled)

- Hemoglobinopathies (hemoglobin SS, Sc, or S-thalassemia)
- Cyanotic heart disease
- Systemic lupus erythematosus
- Chronic renal disease
- Type 1 diabetes mellitus
- Hypertensive disorders

Pregnancy-related Conditions

- Pregnancy-induced hypertension
- Decreased fetal movement
- Oligohydramnios
- Polyhydramnios
- Intrauterine growth restriction
- Postterm pregnancy
- Isoimmunization (moderate to severe)
- Previous fetal demise (unexplained or recurrent risk)
- Multiple gestation (with significant growth discrepancy)

GUIDELINE CATEGORY

Management
Technology Assessment

CLINICAL SPECIALTY

Obstetrics and Gynecology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To review the current indications for and techniques of antepartum fetal surveillance and outline management guidelines for antepartum fetal surveillance, consistent with the best contemporary scientific evidence

TARGET POPULATION

Pregnant women with high-risk factors for stillbirth

INTERVENTIONS AND PRACTICES CONSIDERED

Antepartum Fetal Surveillance

1. Fetal movement assessment
2. Contraction stress test
3. Nonstress test

4. Biophysical profile consisting of nonstress test and four observations made by real-time ultrasonography:
    - Fetal breathing movements
    - Fetal movement
    - Fetal tone
    - Determination of the amniotic fluid volume
5. Modified biophysical profile
6. Umbilical artery Doppler velocimetry (in pregnancies complicated by intrauterine growth restriction only)

Management of Abnormal Test Results

1. Repeat antepartum surveillance tests
2. Induction of labor
3. Cesarean delivery

MAJOR OUTCOMES CONSIDERED

- Negative and positive predictive values of fetal surveillance tests
- The utility of umbilical artery Doppler velocimetry technique in pregnancies complicated by intrauterine growth restriction

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The MEDLINE database, the Cochrane Library, and American College of Obstetricians and Gynecologists' (ACOG's) own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985 and February 1999. The search was restricted to articles published in the English language. Priority was given to the articles reporting results of original research although review articles and commentaries also were consulted. Abstracts of research presented at symposiums and scientific conferences were not considered adequate for inclusion in this document.

Guidelines published by organizations or institutions such as the National Institutes of Health and ACOG were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force.

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician-gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Levels of Recommendations

A. The recommendation is based on good and consistent scientific evidence.
B. The recommendation is based on limited or inconsistent scientific evidence.
C. The recommendation is based primarily on consensus and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and sub-specialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (I-III) and levels of recommendations (A-C) are defined at the end of "Major Recommendations" field.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Women with high-risk factors for stillbirth should undergo antepartum fetal surveillance using the nonstress test (NST), contraction stress test (CST), biophysical profile (BPP), or modified BPP.
- Initiating testing at 32 to 34 weeks of gestation is appropriate for most pregnancies at increased risk of stillbirth, although in pregnancies with multiple or particularly worrisome high-risk conditions, testing may be initiated as early as 26 to 28 weeks of gestation.
- When the clinical condition that has prompted testing persists, a reassuring test should be repeated periodically (either weekly or, depending on the test used and the presence of certain high-risk conditions, twice weekly) until delivery. Any significant deterioration in the maternal medical status or any acute diminution in fetal activity requires fetal reevaluation, regardless of the amount of time that has elapsed since the last test.
- An abnormal NST or modified BPP usually should be further evaluated by either a CST or a full BPP. Subsequent management should then be predicated on the results of the CST or BPP, the gestational age, the degree of oligohydramnios (if assessed), and the maternal condition.
- Oligohydramnios, defined as either no ultrasonographically measurable vertical pocket of amniotic fluid greater than 2 cm or an amniotic fluid index

(AFI) of 5 cm or less, requires (depending on the degree of oligohydramnios, the gestational age, and the maternal clinical condition) either delivery or close maternal or fetal surveillance.

- In the absence of obstetric contraindications, delivery of the fetus with an abnormal test result often may be attempted by induction of labor with continuous monitoring of the fetal heart rate and contractions. If repetitive late decelerations are observed, cesarean delivery generally is indicated.
- Recent, normal antepartum fetal test results should not preclude the use of intrapartum fetal monitoring.
- Umbilical artery Doppler velocimetry has been found to be of benefit only in pregnancies complicated by intrauterine growth restriction. If used in this setting, decisions regarding timing of delivery should be made using a combination of information from the Doppler ultrasonography and other tests of fetal well-being, along with careful monitoring of maternal status.
- Middle cerebral artery Doppler velocimetry should be considered an investigational approach to antepartum fetal surveillance.

Definitions:

Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Levels of Recommendations

A. The recommendation is based on good and consistent scientific evidence.
B. The recommendation is based on limited or inconsistent scientific evidence.
C. The recommendation is based primarily on consensus and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

In the absence of a definitive, relevant randomized clinical trial, evidence for the value of antepartum fetal surveillance remains circumstantial and rests principally on the observation that antepartum fetal surveillance has been consistently associated with rates of fetal death that are substantially lower than the rates of fetal death in both untested (and presumably lower-risk) contemporaneous pregnancies from the same institutions and pregnancies with similar complicating factors that were managed before the advent of currently employed techniques of antepartum fetal surveillance (historic controls). However, these perceived benefits of antepartum fetal surveillance may be influenced by low incidence of adverse fetal outcome in the general population.

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

Relative contraindications to contraction stress test:

- Preterm labor or certain patients at high risk of preterm labor
- Preterm membrane rupture
- History of extensive uterine surgery or classical cesarean delivery
- Known placenta previa

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Oct (reviewed 2004)

GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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